



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2022-1055; Project Identifier AD-2022-00573-T; Amendment 39-22455; AD 2023-11-09]

RIN 2120-AA64

Airworthiness Directives; Gulfstream Aerospace Corporation Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for certain Gulfstream Aerospace Corporation Model GVII-G500 and GVII-G600 airplanes. This AD was prompted by reports of two landing incidents in which the alpha limiter engaged in the landing flare in unstable air, resulting in high rate of descent landings and damage to the airplanes. This AD requires updating the flight control computer (FCC) software. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES:

AD Docket: You may examine the AD docket at [regulations.gov](https://www.regulations.gov) under Docket No. FAA-2022-1055; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule,

any comments received, and other information. The address for Docket Operations is U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

Material Incorporated by Reference:

- For service information identified in this final rule, contact Gulfstream Aerospace Corporation, Technical Publications Dept., P.O. Box 2206, Savannah, GA 31402-2206; telephone 800-810-4853; email pubs@gulfstream.com; website gulfstream.com/en/customer-support.

- You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195. It is also available at regulations.gov under Docket No. FAA-2022-1055.

FOR FURTHER INFORMATION CONTACT: Myles Jalalian, Aviation Safety Engineer, FAA, 1701 Columbia Avenue, College Park, GA 30337; phone: 404-474-5572; email: 9-ASO-ATLACO-ADs@faa.gov.

SUPPLEMENTARY INFORMATION:

Background

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to certain Gulfstream Aerospace Corporation Model GVII-G500 and GVII-G600 airplanes. The NPRM published in the *Federal Register* on September 8, 2022 (87 FR 54925). The NPRM was prompted by reports of two landing incidents in which the alpha limiter engaged in the landing flare in unstable air, resulting in high rate of descent landings and damage to the airplane. In the NPRM, the FAA proposed to require updating the FCC software. The FAA is issuing this AD to address inappropriate alpha limiter engagement during the landing flare, which can limit

pilot pitch authority during a critical phase of flight near the ground, and result in a high rate of descent landing with possible consequent loss of control of the airplane.

Discussion of Final Airworthiness Directive

Comments

The FAA received comments from two commenters, Disney Aviation Group (Disney) and Gulfstream Aerospace Corporation (Gulfstream). The following presents the comments received on the NPRM and the FAA's response to each comment.

Request to Add Service Information

Disney noted that the proposed AD does not reference Gulfstream Technical Bulletins Aircraft Service Change (ASC) No. 039A (for GVII-G500) or ASC No. 029A (for GVII-G600). Disney suggested referring to those documents, rather than requiring using a method approved by the FAA, would be logical and easy. Gulfstream added that these ASCs provide corrective actions to address the unsafe condition and should be incorporated by reference in the proposed AD. Gulfstream added that including the ASCs would provide a less ambiguous path to AD compliance and alleviate the need for operators to obtain an alternative method of compliance (AMOC).

The FAA agrees. Gulfstream GVII-G500 ASC No. 039, Revision A, dated September 13, 2022, including Thales Service Bulletin C13204J-27-002, Revision 01, dated September 13, 2022, and Thales Service Bulletin C13212J-27-002, Revision 01, dated September 13, 2022; and Gulfstream GVII-G600 ASC No. 029, Revision A, dated September 12, 2022, including Thales Service Bulletin C13204K-27-002, Revision 01, dated September 13, 2022, and Thales Service Bulletin C13212K-27-002, Revision 01, dated September 13, 2022; which provide procedures for updating the FCC software, were not available when the NPRM was issued. However, the FAA has now reviewed this service information and determined that it addresses the unsafe condition. The FAA has revised paragraph (g) of this AD to include updating the FCC software in accordance

with the service information as an optional method of compliance. The FAA has also revised this AD to add paragraph (i) of this AD to specify that this AD does not require reporting, added paragraph (j) of this AD to provide credit for certain previous versions of the service information, and redesignated subsequent paragraphs accordingly.

Request to Terminate Additional AD

Disney stated that paragraph (h) of the proposed AD, which states that accomplishing the software update terminates all requirements of AD 2022-10-05, Amendment 39-22043 (87 FR 27494, May 9, 2022) (AD 2022-10-05), is not true. The commenter suggested that the software update would terminate the requirements of both AD 2020-02-18, Amendment 39-21026 (85 FR 8153, February 13, 2020) (AD 2020-02-18) and AD 2022-10-05.

The FAA agrees. Accomplishing the software update required by paragraph (g) of this AD on an airplane terminates all requirements of AD 2020-02-18 and AD 2022-10-05, for that airplane only. The FAA has revised the terminating action language in paragraph (h) of this AD to also refer to AD 2020-02-18. The FAA also revised paragraph (b) of this AD to refer to AD 2020-02-18 as an affected AD. The FAA notes that this AD does not supersede AD 2020-02-18 and AD 2022-10-05 because airplanes that are operated without the FCC software update required by this AD will continue to be subject to the operating restrictions in AD 2020-02-18 and AD 2022-10-05.

Request Change to Applicability

Gulfstream commented that FCC software version 9.5 or equivalent will be installed in production on GVII-G500 aircraft with serial numbers (S/Ns) 72112 and subsequent, and GVII-G600 aircraft with S/Ns 73107 and subsequent. The commenter requested that the FAA revise paragraph (c) to specify that this AD “applies to Gulfstream Aerospace Corporation Model GVII-G500 airplanes, certificated in any

category, serial numbers 72001-72111 and GVII-G600 airplanes, certificated in any category, serial numbers 73001-73106.”

Gulfstream also commented that airplanes on which the software has already been updated to the version required by the proposed AD should be excluded from the applicability of proposed AD.

The FAA partially agrees. The FAA has revised paragraph (c) of this AD to include terminating serial numbers to exclude production airplanes that have FCC software version 9.5 or equivalent. Regarding the request to exclude airplanes on which the software has already been updated, the FAA notes that this change is unnecessary. Paragraph (f) of this AD mandates compliance with the required actions, unless already done. Therefore, if the actions required by this AD have already been accomplished on an airplane, that airplane is already in compliance with this AD.

Request to Correct Software Revision Level and Part Number

Both Disney and Gulfstream noted a typographical error in the FCC software level identified in figure 1 to paragraph (c) of the proposed AD. They requested the FAA revise the FCC software level for the GVII-G600 Module B identified in figure 1 to paragraph (c) of the proposed AD from “72P2700001Z200-SW6.3,” to “72P2700001Z200-SW8.1.”

Disney also stated the part number changes referenced in Gulfstream ASC No. 039A and ASC No. 029A, paragraph D, Re-identified Parts, are different from the part numbers referenced in figure 1 to paragraph (c) of the proposed AD.

The FAA agrees to correct the typographical error and has revised figure 1 to paragraph (c) of this AD as requested. Regarding the different part numbers, the FAA notes that the part numbers referenced in figure 1 to paragraph (c) of this AD are the existing part numbers that need to be revised.

Request to Withdraw the NPRM

Disney stated that there is 100 percent U.S. fleet participation in FCC software version 9.5, and they suggested that all of the requirements have been satisfied via FAA AMOCs. The commenter did not believe that this AD action is necessary, and the FAA infers the commenter is requesting that the FAA withdraw the NPRM.

The FAA disagrees. The worldwide fleet does not have 100 percent compliance with the proposed AD; there are still airplanes that have not been updated to FCC software version 9.5. The FAA, as the State of Design civil aviation authority, has an obligation under international bilateral agreements to issue an AD if an unsafe condition exists. Further, under 14 CFR 39.7 and 39.9, there is a continuing obligation by operators to not reintroduce the unsafe condition mandated by an AD. Therefore, the FAA has determined this AD is necessary to address the unsafe condition.

Request to Clarify Action in a Note

Disney stated that note 1 to paragraph (c) of the proposed AD suggests that removing the covers of the FCC module is necessary to verify the software label. The commenter questioned why the software update cannot be verified by referring to the log entry for the ASC update.

The FAA agrees to clarify. Note 1 to paragraph (c) of this AD is informational in nature and does not require verification of the software update using any particular method. Operators may use other means to determine which software revision they have, provided they can conclusively determine the software revision. The FAA has not changed this AD regarding this issue.

Additional Changes Made to This Final Rule

Since the NPRM published, the FAA evaluated the compliance time and determined that extending the compliance time from “no later than April 30, 2023,” to

“within 90 days after the effective date of this AD,” will not adversely affect safety. The FAA has revised the compliance time in paragraph (g) of this AD accordingly.

Conclusion

The FAA reviewed the relevant data, considered any comments received, and determined that air safety requires adopting this AD as proposed. Accordingly, the FAA is issuing this AD to address the unsafe condition on these products. Except for minor editorial changes, and any other changes described previously, this AD is adopted as proposed in the NPRM. None of the changes will increase the economic burden on any operator.

Related Service Information under 1 CFR Part 51

The FAA reviewed Gulfstream GVII-G500 ASC No. 039, Revision A, dated September 13, 2022, including Thales Service Bulletin C13204J-27-002, Revision 01, dated September 13, 2022, and Thales Service Bulletin C13212J-27-002, Revision 01, dated September 13, 2022; and Gulfstream GVII-G600 ASC No. 029, Revision A, dated September 13, 2022, including Thales Service Bulletin C13204K-27-002, Revision 01, dated September 13, 2022, and Thales Service Bulletin C13212K-27-002, Revision 01, dated September 13, 2022. This service information specifies procedures for updating the FCC software (which includes loading new software to the FCC modules, re-identifying each module with a new part number, and conducting return-to-service functional checks post-modification). These documents are distinct since they apply to different airplane models. This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in ADDRESSES.

Costs of Compliance

The FAA estimates that this AD affects 120 airplanes of U.S. registry. The FAA estimates the following costs to comply with this AD:

Estimated costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Software update	6 work-hours X \$85 per hour = \$510	\$0	\$510	\$61,200

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (1) Is not a "significant regulatory action" under Executive Order 12866,
- (2) Will not affect intrastate aviation in Alaska, and
- (3) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new airworthiness directive:

2023-11-09 Gulfstream Aerospace Corporation: Amendment 39-22455; Docket No. FAA-2022-1055; Project Identifier AD-2022-00573-T.

(a) Effective Date

This airworthiness directive (AD) is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

This AD affects AD 2020-02-18, Amendment 39-21026 (85 FR 8153, February 13, 2020) (AD 2020-02-18); and AD 2022-10-05, Amendment 39-22043 (87 FR 27494, May 9, 2022) (AD 2022-10-05).

(c) Applicability

This AD applies to Gulfstream Aerospace Corporation Model GVII-G500 airplanes having serial numbers (S/Ns) 72001 through 72111 inclusive; and GVII-G600 airplanes having S/Ns 73001 through 73106 inclusive; certificated in any category, with flight control computer (FCC) software revisions installed as specified in figure 1 to paragraph (c) of this AD.

Figure 1 to paragraph (c) of this AD – FCC Software Revision Installed

Model–	Nomenclature–	Gulfstream Aerospace Corporation Part Number (P/N)–	Thales P/N–
GVII-G500 airplanes	FCC COM-MON Module A	72P2700001Z100-SW6.3	C13204JB01
	FCC COM-MON Module B	72P2700001Z200-SW6.3	C13212JB01
GVII-G600 airplanes	FCC COM-MON Module A	72P2700001Z100-SW8.1	C13204KB01
	FCC COM-MON Module B	72P2700001Z200-SW8.1	C13212KB01

Note 1 to paragraph (c): The FCC software label, which identifies the software revision installed, can be found on the face of the FCC module. The FCC modules are installed within the left and right electronic equipment racks. The labels may be viewed by opening the rack doors and removing 4 screws per FCC (8 screws total per airplane) from the FCC cover.

(d) Subject

Air Transport Association (ATA) of America Code 27, Flight controls.

(e) Unsafe Condition

This AD was prompted by reports of two landing incidents where the alpha limiter engaged in the landing flare in unstable air while on the approach and caused high rate of descent landings and damage to the airplane. The FAA is issuing this AD to address inappropriate alpha limiter engagement during the landing flare, which can limit pilot pitch authority during a critical phase of flight near the ground, and result in a high rate of descent landing with possible consequent loss of control of the airplane.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Software Update

Within 90 days after the effective date of this AD, update the FCC software in accordance with either:

(1) Gulfstream GVII-G500 Aircraft Service Change No. 039, Revision A, dated September 13, 2022, including Thales Service Bulletin C13204J-27-002, Revision 01, dated September 13, 2022, and Thales Service Bulletin C13212J-27-002, Revision 01, dated September 13, 2022; or Gulfstream GVII-G600 Aircraft Service Change No. 029, Revision A, dated September 13, 2022, including Thales Service Bulletin C13204K-27-002, Revision 01, dated September 13, 2022, and Thales Service Bulletin C13212K-27-002, Revision 01, dated September 13, 2022; as applicable; or

(2) A method approved by the Manager, East Certification Branch, FAA.

(h) Terminating Action for AD 2020-02-18 and AD 2022-10-05

Accomplishing the software update required by paragraph (g) of this AD on an airplane terminates all requirements of AD 2020-02-18 and AD 2022-10-05, for that airplane only.

(i) No Reporting Requirement

Although Gulfstream GVII-G500 Aircraft Service Change No. 039, Revision A, dated September 13, 2022, including Thales Service Bulletin C13204J-27-002, Revision 01, dated September 13, 2022, and Thales Service Bulletin C13212J-27-002, Revision 01, dated September 13, 2022; and Gulfstream GVII-G600 Aircraft Service Change No. 029, Revision A, dated September 13, 2022, including Thales Service Bulletin C13204K-27-002, Revision 01, dated September 13, 2022, and Thales Service Bulletin C13212K-27-002, Revision 01, dated September 13, 2022; specify to submit certain information to the manufacturer, this AD does not include that requirement.

(j) Credit for Previous Actions

(1) This paragraph provides credit for the actions specified in paragraph (g)(1) of this AD, if those actions were performed before the effective date of this AD using Gulfstream GVII-G500 Aircraft Service Change No. 039, dated September 12, 2022,

including Thales Service Bulletin C13204J-27-002, dated September 9, 2022, and Thales Service Bulletin C13212J-27-002, dated September 9, 2022.

(2) This paragraph provides credit for the actions specified in paragraph (g)(1) of this AD, if those actions were performed before the effective date of this AD using Gulfstream GVII-G600 Aircraft Service Change No. 029, dated September 12, 2022, including Thales Service Bulletin C13204K-27-002, dated September 9, 2022, and Thales Service Bulletin C13212K-27-002, dated September 9, 2022.

(k) Alternative Methods of Compliance (AMOCs)

(1) The Manager, East Certification Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or responsible Flight Standards Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in paragraph (l)(1) of this AD.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the responsible Flight Standards Office.

(l) Related Information

(1) For more information about this AD, contact Myles Jalalian, Aviation Safety Engineer, FAA, 1701 Columbia Avenue, College Park, GA 30337; phone: 404-474-5572; email: 9-ASO-ATLACO-ADs@faa.gov.

(2) Service information identified in this AD that is not incorporated by reference is available at the addresses specified in paragraphs (m)(3) and (4) of this AD.

(m) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(i) Gulfstream GVII-G500 Aircraft Service Change No. 039, Revision A, dated September 13, 2022, including Thales Service Bulletin C13204J-27-002, Revision 01, dated September 13, 2022, and Thales Service Bulletin C13212J-27-002, Revision 01, dated September 13, 2022.

(ii) Gulfstream GVII-G600 Aircraft Service Change No. 029, Revision A, dated September 13, 2022, including Thales Service Bulletin C13204K-27-002, Revision 01, dated September 13, 2022, and Thales Service Bulletin C13212K-27-002, Revision 01, dated September 13, 2022.

(3) For service information identified in this AD, contact Gulfstream Aerospace Corporation, Technical Publications Dept., P.O. Box 2206, Savannah, GA 31402-2206; telephone 800-810-4853; email pubs@gulfstream.com; website gulfstream.com/en/customer-support.

(4) You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195.

(5) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, fr.inspection@nara.gov, or go to: www.archives.gov/federal-register/cfr/ibr-locations.html.

Issued on June 2, 2023.

Michael Linegang, Acting Director,
Compliance & Airworthiness Division,
Aircraft Certification Service.

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